

Mathematics Grade 3

When do you use mathematics? You use it every single day. When you buy something at the store, you ask yourself, “Do I have enough money?” “Did I get the correct change back?” Before you set your alarm clock, you think about how much time you will need to get ready in the morning. When you share things with your friends or your brothers and sisters, you want to be sure to divide equally. People use mathematics every day in their jobs. All jobs from firefighters to building contractors use mathematics. Even if you’re not sure what you want to do when you grow up, learning mathematics will give you a lot more choices to pick from later. You will discover that mathematics can be a lot of fun!

About the Test

AIMS DPA Mathematics test contains approximately 80 multiple-choice questions. Fifty-five of the items are AIMS only questions. Fifteen items are *TerraNova* and AIMS questions, and ten items are *TerraNova* questions. Calculators are not allowed; however, the calculations required can be readily handled with pencil and paper. This is not a timed test. You can take as much time as you need to do your best. Most of the questions will be based on general understanding of mathematics and problem-solving skills.

Hints for Taking AIMS DPA Mathematics

- Remember! This is **not** a timed test! Take as much time as you need and do your best work.
- Estimate an answer first so you can check if your answer is reasonable.
- Calculators are not allowed in this test, so be careful with your calculations and double-check your work.
- Multiple-choice questions – look at **all** the choices and choose the **best** one.

Sample Questions for Mathematics

What To Expect From This Section

This AIMS DPA Student Guide for Mathematics provides examples of the format and types of questions that will appear on AIMS DPA Mathematics. An attempt has been made to provide a sampling of the types of questions that might be asked, however, not every concept in each strand has a corresponding sample question in this guide. An answer key for all mathematics sample questions is provided in the appendices.

Strand 1: Number Sense and Operations

General concepts you should know:

- Add and subtract two three-digit whole numbers.
- Use fractions (halves, thirds, fourths, eighths, and tenths), including adding and subtracting of fractions with common denominators.
- Read, write, and order (smallest to largest and largest to smallest) whole numbers up to one thousand.
- Recognize place value concepts.
- Use expanded notation.
- Count money; adding and subtracting money up to \$20.00.
- Evaluate reasonableness of results using a variety of techniques, including estimation.

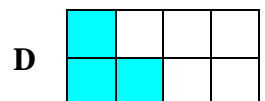
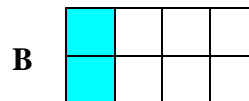
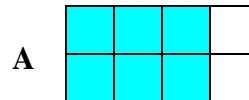
- 1 Tom lives in a city where 32,945 people live. How is that number correctly written in words?

- A thirty-two and nine forty-five
- B thirty-two thousand nine forty-five
- C thirty-two thousand nine hundred forty-five
- D thirty-two thousand nine hundred and forty-five

- 2 Which of the following lists is in order from least to greatest?

- A 231, 367, 511, 483
- B 231, 367, 483, 511
- C 511, 231, 483, 367
- D 511, 483, 367, 231

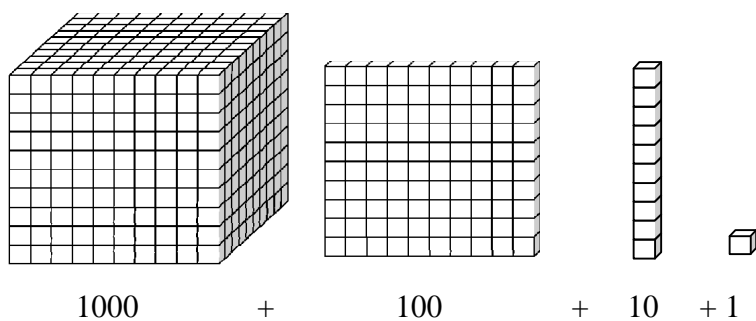
- 3 Which of the following has 75% shaded?



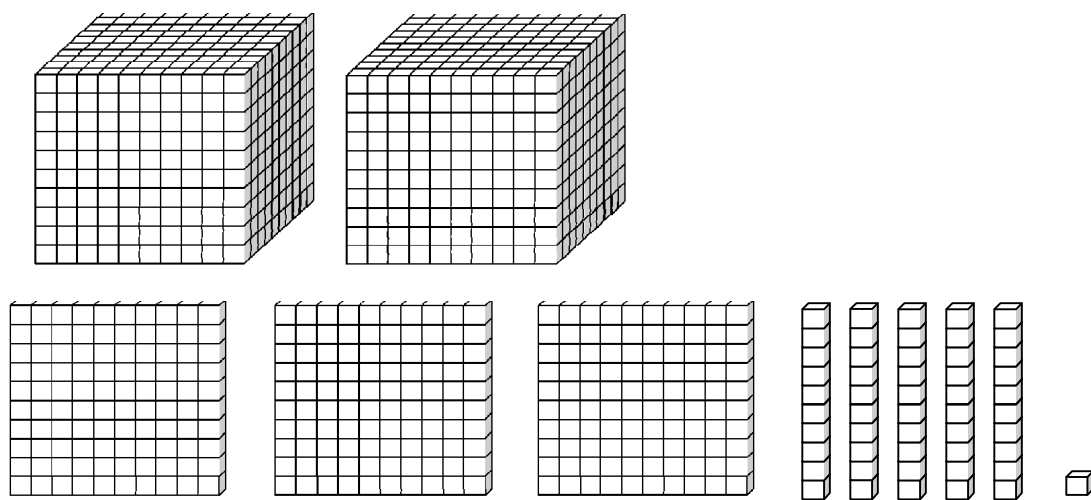
- 4 Which of the following means the same as 4×7 ?

- A $4 + 7$
- B $7 + 7 + 7 + 7$
- C $4 + 4 + 4 + 4$
- D $7 + 7 + 7 + 7 + 7 + 7 + 7$

5 The model below represents the number 1111.



What number is represented by the model below?



- A 236
- B 281
- C 2351
- D 2531

6 Which of the following has a total value of \$5.64?

A



B



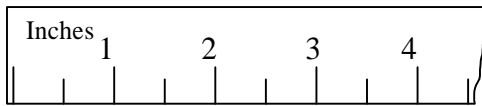
C



D



- 7 Which of the following is closest to the width of the butterfly below?



- A 1 inch
B 2 inches
C 3 inches
D 4 inches
- 8 What is the solution to the problem shown below?

$$\begin{array}{r} 425 \\ + 418 \\ \hline \end{array}$$

- A 933
B 943
C 843
D 833
- 9 What number goes in the box to make this sentence true?

$$6 \times \square = 48$$

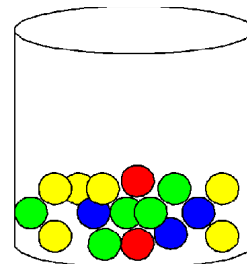
- A 9
B 8
C 7
D 5

Strand 2: Data Analysis, Probability, and Discrete Math

General concepts you should know:

- Collect, record, and organize data from surveys and probability experiments.
- Identify largest, smallest, most often recorded (mode), least often and middle (median).
- Make and label graphs and solve problems using graphs, charts and tables.
- Name possible outcomes of probability experiments and predict the most likely or least likely outcome.
- Make a diagram of possible combinations.

- 10 Aliyah has 16 marbles in the jar below. There are 3 blue marbles, 2 red marbles, 5 green marbles, and 6 yellow marbles.



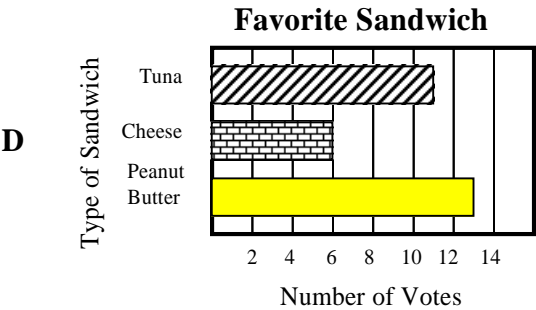
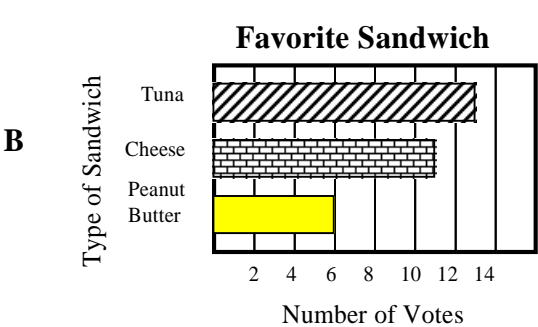
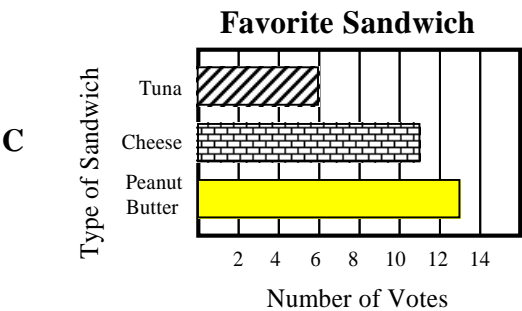
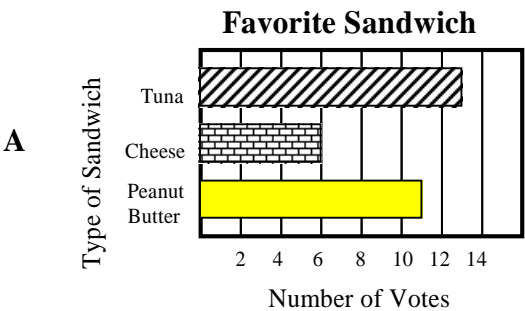
Without looking, Aliyah reaches into the jar and takes out one marble. What color marble is she **least** likely to get?

- A Blue
B Green
C Red
D Yellow







11 Mrs. Henkel asked her students to vote for their favorite type of sandwich. The table below shows the results.

Favorite Type of Sandwich	
Sandwich	Number of Votes
Tuna	13
Cheese	6
Peanut Butter	11

Which graph shows the same results as the table?









12 The table below shows clothes options.







Pants	Shirts	Caps
 	 	 









What group shows all the different combinations of 1 cap, 1 shirt, and 1 pair of pants?

- A


- B


- C


- D



Strand 3: Patterns, Algebra and Functions

General concepts you should know:

- Create, describe, and extend a variety of patterns using shapes, events, designs, and numbers.
- Make predictions based on a given pattern.
- Identify the pattern in skip-counting and name the next number in a pattern.
- Find the missing number in addition and subtraction number sentences.

- 13** What is the next number in this pattern of skip-counting by 4?

4, 8, 12, ____

- A** 16
- B** 15
- C** 14
- D** 13

- 14** Marques practiced the piano **more** than 3 hours each week last month.

Which of the following could be the total number of hours he practiced last month?

- A** 17 hours
- B** 12 hours
- C** 10 hours
- D** 6 hours

- 15** Christine and Angeles played “Guess My Rule”. Every time Christine said a number Angeles changed it into a different number using a rule.

“Guess My Rule” Results

Christine's Number	Angeles' Number
3	15
7	35
9	45

Which of the following could be the rule Angeles used?

- A** Add 9
- B** Subtract 9
- C** Divide by 5
- D** Multiply by 5

- 16** Which of the following goes in the box to make the number sentence below true?

$$\boxed{} + 5 = 14$$

- A** 9
- B** 8
- C** 7
- D** 6

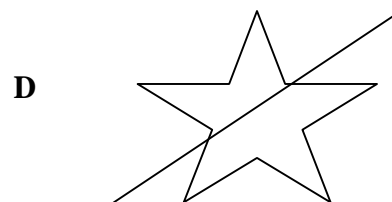
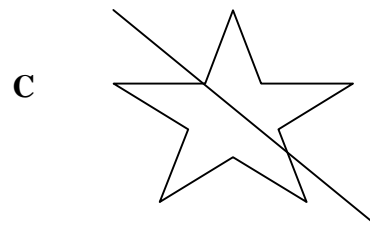
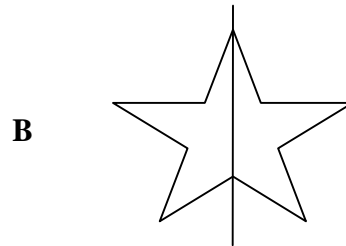
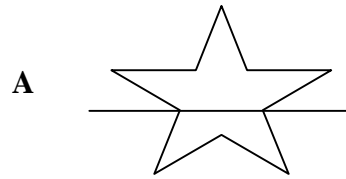
Strand 4: Geometry and Measurement

General concepts you should know:

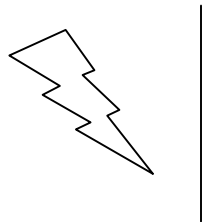
- Identify two- and three-dimensional shapes; draw two-dimensional shapes.
- Compare attributes of two-dimensional shapes and compare attributes of three-dimensional shapes.
- Predict how shapes can be changed by combining or dividing them.

- Determine and identify the characteristics (attributes) of an object that are measurable (e.g., length and weight are measurable; color and texture are not).
- Select appropriate unit of measure for a given characteristic of an object (e.g., inches, feet and yards; centimeters and meters; cups, gallons and liters; ounces, pounds, grams and kilograms).
- Select appropriate tool to measure the given characteristic of an object (e.g., ruler, thermometer, measuring cup, scale).
- Tell time to the nearest minute on digital and traditional (analog) clocks.
- Determine the passage of time (days, months and years) using a calendar.
- Compare units of measure to determine “more or less” relationships (e.g., 10 inches < 1 foot); also to determine equivalent relationships (e.g., 3 feet = 1 yard).
- Read a thermometer in Celsius and Fahrenheit to the nearest degree.
- Estimate measurements and evaluate reasonableness.

17 Which of the following shows the figure drawn with a line of symmetry?

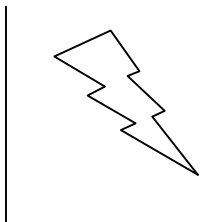


18 Ruth will reflect (flip) the figure below across the line.

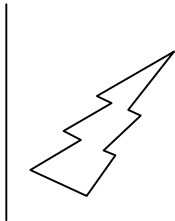


Which of the following shows how the figure will look after being flipped?

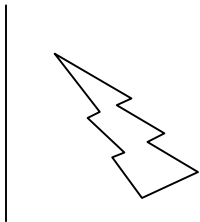
A



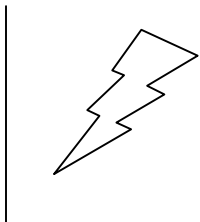
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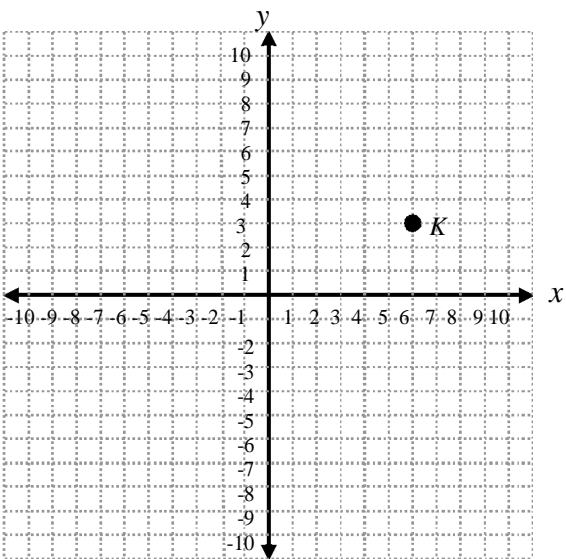
C



D

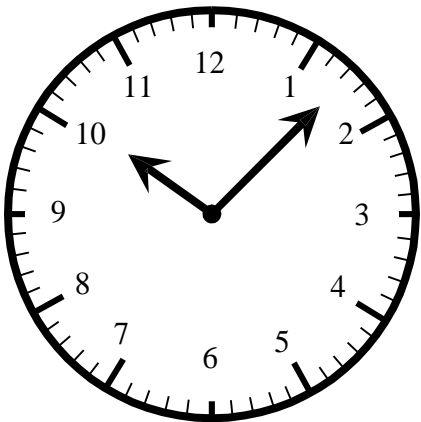


19 Which of the following ordered pairs shows the location of point K on the grid below?



- A (6, 2)
- B (6, 3)
- C (3, 5)
- D (3, 6)

20 Which of the following could be the time shown on the clock below?



- A 1:45 pm
- B 1:50 pm
- C 9:07 am
- D 10:07 am

Strand 5: Structure and Logic

General concepts you should know:

- Identify necessary and unnecessary information.
- Draw a conclusion from existing information.

21 The only pets Mr. Li sells are dogs. Some of the pets Mr. Li sells are poodles. Shelbi bought a pet from Mr. Li.

What is known from reading the facts above?

- A** Shelbi bought a poodle.
- B** Shelbi bought a dog.
- C** Mr. Li sells cats.
- D** Mr. Li sells beagles.

Scoring Keys

Mathematics Key

Question #1: C
Question #2: B
Question #3: A
Question #4: B
Question #5: C
Question #6: A
Question #7: D
Question #8: C
Question #9: B
Question #10: C
Question #11: A
Question #12: D
Question #13: A
Question #14: A
Question #15: D
Question #16: A
Question #17: B
Question #18: D
Question #19: B
Question #20: D
Question #21: B